An
Inaugural Essay,
on the
Varioloid Epidemic,
which prevailed at Wilmington, Delaware, in the years 1827 & 1828,
For
The Degree of Doctor of Medicine,
in
The University of Pennsylvania.

By
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of Delaware.

Passed March 7. 1829

The imperfect state of our knowledge, in regard to the influence of Climate upon Epidemic diseases, renders an account of the weather, during its prevalence, an important part of the history of an Epidemic. Of equal value is a sketch of the preceding and coexisting complaints. Before entering on the subject proper to my Eſsay, I will therefore bestow some attention upon these circumstances.

The period of time from 1820 to 1827, was marked in the northern part of Delaware, by a smaller quantity of rain than common, especially in the Summer Months; and by a succeſsion, with few exceptions, of mild open winters. It is the general opinion among the older inhabitants, that leſs rain fell at Wilmington, during that time, than in any other seven years within their recollection. Springs and wells gave out

in the latter part of the period, that had never been known to fail. In 1824, '25, and '26, the Epidemic bilious remittent, and intermittent fever, was most rife, and prevailed in high, as well as in low, situations. The year 1827 was more healthy than usual, particularly in the fall, when few cases of autumnal fever occurred. Varicella, the general precursor of Varioloid, did not make its appearance, — or, if at all, not until that disease had become Epidemic, in the winter of 1827, '28. In the course of this winter, there was nothing remarkable in the concomitant diseases, except that almost every case was attended by eruptions of the skin; — a fact, still more strikingly observed, on the approach of Spring, during the prevalence of Rubeola. Throughout the summer of 1828, the Alimentary canal was the chief seat of disease, Diarrhoea and Cholera being widely prevalent. Towards the end of the 6th. month, when Varioloid was most extensive, Dysentery was not uncommon for a time, but soon disappeared: — a disease that has hardly been observed at Wilmington, for a number of years.

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In the Fall ensuing, the Autumnal Fever made its accustomed visitation.

The extension of the Varioloid Epidemic, in the Summer of 1828, (after it had once subsided) in a degree equalling, if not exceeding, the previous winter; and the extreme heat of the weather, at the same time, - are circumstances worthy of attention. The disease was most predominant, about the close of the 6th, and the beginning of the 7th. month. By referring to the Meteorological Journal for these months, which I have thought proper to give complete, it will be seen that the weather at this time was excessively warm [Indeed, the Mean Temperature of the former, was higher than of any other month in the year]. My remarks on the Epidemic, are chiefly from observations during the Summer Campaign, in which it was not observed to differ in any respect, from its previous accession.

The mean monthly temperature given in the following tables, is calculated from two observations of the Thermometer, daily; one, about sun-rise, the other at the

warmest part of the day. I have divided the winds into three clasſes, – the first of which from N. and N.W. is generally accompanied by dry and cool weather; – the second, from N.E. to S.E. mostly damp; – and the third, from S. to W., warm, and also frequently attended by rain, especially in Winter. In the second Table, when there have occurred rains of importance, the quantity is specified.

Months	
1	29
2	35
3	44
4	55
5	60
6	67
7	74
8	73
9	64
10	56
11	41
12	34
	53

Months	
1	34
2	39½
3	41½
4	45
5	62
6	73¼
7	74½
8	73¼
9	64½
10	50
11	44
12	38½
	53¼

1827

Months	Mean Temperature	Coldest extreme	Warmest extreme	N.W. winds	E. winds	S.W. winds	Clear days	Cloudy days
1	29	5	44	12	7	12	15	16
2	35¼	14	48	10	6	12	16	12
3	44	29	65	12	6	13	19	12
4	55½	35	69	10	7	13	15	15
5	60½	42	75	10	10	11	21	10
6	67¼	60	82	10	7	13	26	10
7	74½	69	89	6	11	14	24	7
8	73½	68	93	8	14	9	21	10
9	64½	43	84	10	14	6	21	9
10	56	32	72	9	10	12	17	13
11	41¼	23	71	11	7	12	15	16
12	34½	18	56	3	15	13	5	26
	53	5	93	111	114	140	209	156

1828

Months	Mean Temperature	Coldest Extreme	Warmest Extreme	N.W. winds	E. winds	S.W. winds	Clear days	Cloudy days
1	34	10	54	8	11	9	9	22
2	39½	17	56	8	10	10	13	15
3	41½	19	65	9	15	7	17	14
4	45	28	63	10	11	9	16	14
5	62	44	78	9	11	11	20	11
6	73¼	55	90	10	7	13	22	8
7	74½	57	92	12	4	15	23	8
8	73¼	56	92	6	9	16	26	5
9	64½	50	90	7	9	14	19	11
10	50	27	70	9	7	15	24	7
11	44	27	53	11	9	10	12	18
12	38½	17	59	9	3	19	22	9
	53¼	10	92	108	109	148	223	142

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Days	Thermom at Sun	Th
1	55	70
2	56	76
3	66	68
4	63	80
5	68	84
6	66	83
7	67	85
8	64	81
9	57	82
10	62	76
11	59	77
12	68	73
13	70	78
14	68	81
15	67	82
16	66	77
17	68	83
18	68	88
19	68	78
20	60	76
21	64	76
22	70	70
23	72	66
24	74	86
25	77	90
26	74	81
27	73	81
28	73	83
29	74	87
30	75	83
31		

1828.

	6th. month					7th. month				
Days	Thermom. at Sunrise	Ther. at 2 P.M.	Barom.	Winds	Remarks	Ther. at Sunrise	Ther. at 2 P.M.	Barom.	Winds	Remarks
1	55	70		N.W.	clear.	76	82		S.W.	Rain. .5 in.
2	56	76		S.W.	do.	66	76		S.W.	Clear
3	66	68		S.E.	do.	60	74		N.W.	do.
4	63	80		S.W.	foggy	60	75		N.W.	do.
5	68	84		N.W.	clear	60	76		N.	do.
6	66	83		N.W	do.	64	83		W.	do.
7	67	85		S.W.	do.	64	84		W.	do.
8	64	81		W.	do.	76	84		S.E.	Cloudy: some rain
9	57	82		N.W.	do.	64	74		S.W.	Clear.
10	62	76		S.	do.	61	76		S.W.	do.
11	59	77		E.	cloudy	66	80		S.W.	do.
12	68	73		S.E.	foggy	57	78		N.	do.
13	70	78		S.W.	cloudy – gust.	70	75		S.E.	rain 3.25 in.
14	68	81		N.W.	clear	69	81		N.W.	Clear
15	67	82		N.W.	do.	69	79		W.	do.
16	66	77		S.	cloudy	65	83		E.	do.
17	68	83		W.	clear	68	78		N.W.	do.
18	68	88		W.	do. – rain P.M. 2 in.	74	83		N.W.	do.
19	68	78		N.W.	do.	63	83		N.W.	do.
20	60	76		N.W.	do.	65	75		N.W	rain. 1 in.
21	64	76		N.E.	do.	70	82		S.W.	Clear
22	70	70		N.E.	do.	73	83		S.W.	Cloudy
23	72	66		S.W.	do.	74	87		S.W.	do. some rain
24	74	86		W.	do.	74	89		S.W.	Clear
25	77	90		N.W.	do. rain in Evg.	74	92		W.	do.
26	74	81		N.E.	Cloudy	78	89		N.W.	do.
27	73	81		S.E.	do.	74	88		N.W.	do.
28	73	83		S.W.	Clear	75	83		N.W	do.
29	74	87		N.W.	do – showr. .5 in.	69	78		N.E	Cloudy
30	75	83		S.W.	Rain 1.5 in.	59	84		S.W.	do.
31						67	84		S.W.	Clear.

An eruptive disease, which occasionally attacked vaccinated individuals, was observed in several parts of Scotland in the summer of 1818; but did not attract much attention, until, towards the close of that year, it became Epidemic at Edinburgh, and some other places in Great Britain, and shortly afterwards in many parts of Europe. In the year succeeding, it appeared for the first time in this Country, at Lancaster, in the State of Pennsylvania, and subsequently at Baltimore, Philadelphia, Wilmington, and other places.

At Wilmington, the Varioloid disease first became prevalent in the winter of 1827-28. Alarm having been excited by its appearance in Philadelphia, towards the close of 1823, measures were then taken to vaccinate all the unprotected inhabitants of the town and vicinity. When this task was nearly completed, several scattered cases of Small pox occurred; and about the same time it broke out in the Poor-house, adjacent to the town. But it was very limited in its extent, and attacked none but unprotected persons

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persons. With these few cases, the disease vanished, not to reappear for four years. Notwithstanding the free and daily communication with the infected city, distant leſs than thirty miles, not a single case of Variolous disease occurred during this period, in a population of 8000 souls. At Baltimore a similar circumstance was witneſsed in the winter of 1819-20, when the Small pox showed itself, and was fatal in several instances, until its career was cut short by a general vaccination. In 1827, it again broke out in the same city, and threatened to become general; but Vaccination was again resorted to with almost the like happy result. Such facts as these certainly afford strong evidence in favour of the protecting virtue of vaccination against the *old-fashioned* Small pox; or, the disease unconnected with a state of atmosphere favorable to the infection, or whatever has enabled it of latter times, to transcend its long prescribed bounds.

The first case of Eruptive fever in Wilmington previously to its general prevalence, was in the latter part of the

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of the 10th. month, 1827. The subject of it was a colored woman, who was not aware of any exposure to contagious disease. Being unprotected, she passed through the regular Small pox. In the course of the winter, Varioloid disease became epidemic, chiefly among the vaccinated, the number of the unprotected who were exposed to it being comparatively small. On the approach of Spring, it declined, and gave place to Measles of unusual virulence. Eruptions on of the skin, as before remarked, attended almost every case of sickness at this period. On the accession of hot weather in the 6th. month, the Varioloid again broke out, and, for a time, prevailed to some extent; but again subsided, occasionally presenting a severe case, through the Summer and fall of 1828. I am not prepared to say, whether or not, any instances of Chicken pox occurred. Several cases, which were so pronounced, showed themselves capable of propagating the Varioloid.

The form of the eruption, and attending symptoms did not differ materially from what was observed in

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Philadelphia; to an able history of which, in the 1st. Vol. of the N. Amer. Med. & Surg. Journal, drawn up by Drs. Mitchell, and Bell, I will content myself by referring in these respects.

As its prevalence in the Summer of 1828, was somewhat out of the usual order, my particular attention was drawn to it at this time, especially as I had it in my power, to observe its progress in a part of the town not hitherto infected, inhabited chiefly by the lower class of population. The first case which happened here was one of modified disease in an unprotected constitution; and as it is the only one of the kind I met with, its history may not be devoid of interest.

Israel Bush, aet. 12 years, unvaccinated. On the 12th of the 6th. month, I found him with ~~fever~~ headach, cough, and other symptoms of catarrhal fever. By the usual antifebrile treatment, he was much relieved on the next day, at which time, numerous minute papulae were discernible on the face and hands. As he was entirely unprotected from Small pox, I was apprehensive that he had contracted that disease. But the eruption did not extend beyond the face and hands, and became vesicular on the

3rd. day of its duration, and on the 4th. was declining. I then set it down as a case of Varicella. On the 18th. of the month, the vesicles had completely dried, leaving the skin in a *scaly* state. On the 20th. my attention was drawn to another crop on the face, neck, and arms, which were reported to be of two days standing, and had the aspect of genuine Small pox, at the fourth day of the eruptive stage. These were matured in five days from their first appearance, retaining their original form, with smooth, rounded edges, and mostly a depressed centre. Meanwhile, on the 23rd. of the month, a third set appeared, for the first time ~~of~~ on the feet and legs, and a few on the hands, which progressed into pustules precisely as the second crop, the thin *scales* of which fell off, before the maturation of the third series. The fever was very slight at all times after the subsiding of the Catarrhal symptoms, so that the patient was not confined to his bed after the 13th. of the month. From this case, the genuine Small pox was generated in the same family, thus establishing the nature of the disease to have been Variolous.

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Of 4 or 5 cases, among the unprotected, in the same neighborhood, only one proved fatal; and this one, more properly from a diarrhoea which supervened on the 17th. day of the disease. In only one instance, was there any variation in the pustules from the usual appearance of Small pox, and here the pustules preserved throughout, a central depression, with rounded edges, like the vaccine vesicle.

The same district furnished numerous cases of <u>Varioloid</u>, properly so called, which were generally mild, and presented nothing worthy to be particularized. Several unprotected children, in whom vaccination had failed, were hourly exposed to the infection with perfect impunity. To The frequency of this want of susceptibility in the constitution, which was observed both in cold and warm weather, I have the concurrent testimony of several medical men of the town. To exemplify it I will relate one instance: A vaccinated lad aged 6 years, had a mild attack of the disease, which he could only have contracted while playing in the street with other children. An unprotected child, who lived in the same room, was immediately vaccinated, but to

*I am aware that examples are not unfrequent of Natural immunity from Vaccine & Variolous disease. One instance was furnished me by a Medical Friend (Dr. Jaques) where six children of one family had been repeatedly vaccinated & inoculated without any effect. But during the existence of this Epidemic, the individuals protected from it by nature, much exceeded in number those who were out of the power of Vaccination.

no purpose, and of course ran the risk of incurring the Natural Small pox. A young woman whose home was in the country, and who had been vaccinated ten years before, spent part of a day at the house, and was attacked by the disease on the *eleventh* day after her return to the country. But the unprotected child, though constantly exposed, enjoyed entire immunity. Nevertheless, I succeeded, a few weeks subsequently, in an attempt to subject this individual to the influence of the vaccine virus.*

The account just given will also illustrate another feature in the history of this Epidemic; – the extreme liability of many vaccinated persons to the influence of the infection, even on after the slightest exposure. They appeared in many cases, more easily susceptible than the unvaccinated. Instances were not unfrequent, when an unprotected individual escaped entirely, while the greater part of the family, in the same exposure, passed through the Varioloid. In a family of six children, all successfully vaccinated except one whose constitution had resisted every attempt to subject him to the Cow-pock, the unprotected one

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was the last to submit to its influence; the remaining five being attacked, one after the other, previously. Numbers of the vaccinated were attacked, whose only poſsible exposure must have been while walking the street. No constant relation was observed between this extreme susceptibility to the disease and its severity.

I met with one case, after the Epidemic had in some measure declined, in the 9th. month, which had not the appearance of either Variola or Varicella, but proved itself capable of propagating the Varioloid. S. B. aet. 24, vaccinated in infancy, and afterwards repeatedly exposed to Small pox with no effect, was attacked by fever, nausea, and occasional bilious vomitings, which symptoms lasted a week, with frequent intermiſsions. He knew of no exposure to any contagious disease. At the end of a week from the first attack, the affection of the stomach gave way to a sparse, papular eruption, on the face and wrists. On the third day of the appearance of these papulae, they were small, pointed, inflamed & hard at the base, and filled with yellowish serum, which soon became pus.

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Small scabs were then formed, which fell off in two or three days more. These *pimples*, as they were called, I supposed to have nothing specific in their nature, and to be merely that form of eruption, so often consequent to irritation of the Stomach from ardent spirit; and the case was positively pronounced to be nothing like Variola or Varicella, by a Physician of considerable experience in these complaints. Yet his two shopmates were both seized in about two weeks, with distinctly marked Varioloid, which, from the peculiar circumstances attending, I have no hesitation in tracing to the contagion of the case just described.

The proportion of protected persons, who were susceptible to the contagion on exposure to it, during the term of its prevalence here, is very differently estimated by different practitioners. So very contradictory are the data on which a conclusion in this respect must be founded, that no constant rule, or even an approximation to one, can be formed. In some families the disease did not extend beyond a single case, whilst in others, as far as could be discerned

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discerned, under the same circumstances; the greater part was attacked. The fact, narrated some pages back, of five vaccinated children of one family, who all sickened with it, is one in point. A very similar illustration of the same thing fell under my notice in the 9th. month, 1828. A young woman aged 24 years, who had been vaccinated in childhood, contracted the disease in some unknown way, and was surrounded during her sickneſs, by the family, consisting of her parents who had been inoculated, their four other children, and a niece, all vaccinated in infancy by different Physicians. All except the parents, and one child, aged 10 years, were succeſsively attacked; and with one exception, the disease was lighter in proportion as the period of vaccination was more recent. In another family of seven children, between the ages of 10 and 25, vaccinated when very young, six were attacked, all very lightly except one adult whose illneſs was extremely severe, and accompanied with secondary fever. The one who escaped was aged about 21. In a family of four small children, between 2 & 8 years of age likewise vaccinated in infancy, the two

oldest were slightly attacked, and the remaining two escaped, although they slept with the others during their sickness. The two youngest had both been vaccinated within three years.

On the other hand, instances could be given, where one or two cases in a large family of children, limited its extent. I am informed by Dr. Vaughan, Physician to the Poor-house of this County, that in the winter of 1827-28, out of nearly 40 persons who were exposed in the same apartment with the Smallpox, in that institution, only three or four unprotected individuals suffered from it. The rest were exempted by their previous vaccination or inoculation. From my personal observation, I should judge, that at least one third of those children who were *repeatedly* exposed to the Variolous poison, were liable to an attack. But, of all above 23 or 24 years of age, a large proportion of which have been inoculated, not more than one of six or eight.

In Scotland, during the prevalence of the Epidemic there, as nearly as can be judged from the excellent works of Dr. Thomson, about one of ten or 12 vaccinated persons was liable to the contagion; at Norwich, Eng. according to

to Croſs, one of twenty; at London, one of twenty five; in France, a smaller proportion; and in many places, Vaccination was a complete protection. But in Philadelphia, Profeſsor Chapman stated to his Claſs, in the Medical Lectures of 1828, his firm conviction, that if the students then present, 400 in number, would expose themselves to the contagion by visiting the Smallpox Hospital, not 100 of them would escape disease in some shape or other. The power of the disease to overcome the usual preservative means appears in some degree, to have depended on its malignancy. But that these two traits did not uniformly, go hand in hand, is evinced by the fact, that at Hamburg, and most other places in Europe, where great fatality attended, the proportion of modified cases was small.

In regard to the comparative protection afforded by Vaccination and Variolation, the balance is, in my opinion, greatly in favor of the latter. A very small number of cases occurred within the reach of my observation and enquiry, after inoculated or Natural Smallpox; Not more than one twentieth part of those attacked were of this claſs. I very much doubt, whether

* In Philadelphia, the relative number of Varioloid attacks after Variolation was very small. According to Professor Chapman only 30 or 40 such instances occurred, whereas Vaccination failed in between four and five thousand cases.

all the cases reported to be of this kind, both in Wilmington, and elsewhere, could be substantiated: for, the proof of having been inoculated, afforded by the patient's testimony to that effect, cannot be depended on, unless concomitant evidence is furnished by a distinct scar. We must bear in mind however, in considering this subject, that, on account of the length of time since ~~the~~ ~~[illegible]~~ inoculation was practised, a small portion only, probably not more than one fourth part of our present population, is protected in this way; and most of these being adults, they are generally supposed, on that account, to be less liable to the Contagion of Smallpox, than Children. Of the comparative severity of the disease after Vaccination, and Variolation, I am unable to form a just estimate*.

No instance of a second attack of Varioloid happened in this town, nor, as far as we are informed, in any part of the United States. Whereas Dr. Thomson records 30 such cases, among 310 patients at Edinburg; and two of these had a third attack, one of which was more severe than either of the former. In several patients, I observed a second, and even a third set of eruptions, to appear,

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to appear, about the time of the dying away of the preceding set. Possibly some instances of this kind are included by Thomson in his statement.

The Mortality of the Epidemic among the unprotected, during the whole period of its prevalence at Wilmington, is variously reckoned by different practitioners. But it certainly was not nearly so great as at Philadelphia, and some other places. After weighing the different statements in this respect, with the best judgement in my power, I believe the number of fatal cases to have been about one in four or five. There was no well attested instance of death among the protected.

Some facts occurred tending to support a hypothesis, which has found few advocates, viz: That Vaccination affords, in many cases, only a temporary protection; or in other words, that it wears out of the system. In my own experience of more than 40 cases, there was not a single very severe attack, in a patient under 10 years, who had undergone the genuine Cow-pock. The observation of several physicians testifies to the same fact, as regards their practice. Only four of the 40 abovementi

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abovementioned were younger than 4 years, and 14 were between the ages of 18 and 25. Seven of these 14 were very severe cases, three of which were attended with secondary fever, and considerable danger. In five out of the last-named seven, including two of the cases which were dangerous, vaccination had been performed by careful physicians, and the marks were very distinct and apparently genuine.

Being a subject of some importance, I will add the testimony of Dr. Mohl of Copenhagen, and Dr. Dufresne of Geneva, in support of this view. We are told by the former, that at Copenhagen, of 653 cases of Modified Small pox, among the vaccinated, none were under three years of age, only 14 under five, 102 between five and ten, 173 between ten and fifteen, 187 between fifteen and twenty, 156 between twenty and twenty-five, and 21 above twentyfive. When we reflect that vaccination is mostly performed there in infancy, we cannot but own that the foregoing affords tolerably strong evidence of the wearing out of its preservative power. Dufresne relates, concerning 106 cases of the same kind at Geneva, that 3 of them had been vaccinated within six months of the attac

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of the attack, 4 within a year, and more than six months, 34 between one and five years before, 36 between five and ten, 20 between ten and fifteen, and 9 between fifteen and twenty. This report tends in a small degree to add strength to the same point. So also do the observations of Adams, Gregory, Cross, and several others.

Although previously inclined to believe that the system could not be partially subjected to the Cow-pock, by what is considered an irregular, or spurious vesicle, several cases occurred which tested my credulity on this subject. Two of the most prominent, I will briefly narrate.

Peter Howard, aet. 22. was seized on the 25th. of the 6th. month, with high fever, accompanied by ~~high~~ violent pain in the chest. On the evening of the 27th. when I first saw him, the pain still continued, with much dyspnoea, a feeble, oppressed pulse, and sense of extreme debility. A few papular prominences were visible on his face. He said, in reply to my enquiries, that he had been vaccinated when a child, and afterwards had gone through the natural small pox; but

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pox; but on examination, no distinct mark of either could be found. Venesection and a Cathartic were prescribed, with much relief. On the next day, the pain had vanished, but the whole surface was thickly covered with a papular eruption, which advanced regularly to maturation by the eigth day. At this time it had every appearance of Natural Small pox, but immediately began to decline, without secondary fever; so that in another week, the scabs were falling off, and convalescence was nearly complete.

Daphne Draper, aet. 4 years, was attacked, on the 20th. of the 7th. month, with high fever and vomiting, and on the next day, a crowded papular eruption covered the entire surface. Her mother stated, that about two years before, the child and her older sister, who was lying in the same bed, had been vaccinated; but the Physician who did it, pronounced the pock, in each instance, irregular, advising a revaccination at some future time, - which had been neglected. The arms of both presented cicatrices, but very unlike those of genuine vaccination. Although the eruptive fever in the one above named, was

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named, was not very high, after the first onset, delirium or stupor almost constantly attended: and, the girl having a feeble constitution, the prospect of her recovery from what appeared to be severe distinct Small pox, was much clouded. However, the pustules filled kindly, becoming in many places confluent, but evidently disposed to preserve the distinct form; and on the 9th. day of the eruption, I was both surprised and gratified, to find the little sufferer sitting at the window. From this time she recovered rapidly, without fever, or a single unfavorable symptom. Meanwhile the older sister (aet. 6) who had also been exposed to the contagion at the same time, had a slight accession of fever, attended with nausea, but not followed by any apparent, cutaneous affection. Similar cases were not unfrequent among the vaccinated who were exposed to the contagion. The same remark has been made, in the history of the Epidemic, at other places.

In both the individuals whose cases have been narrated, I supposed the disease, during its eruption stage, to be unmodified Small pox, of which it certainly had every

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every characteristic appearance, previously to the 9th. day. The unexpected change which took place at that period, seemed to show that the imperfect vaccination was still capable of exerting some influence on the constitution, so as to modify the disease into severe varioloid.

As additional evidence to the same purport, I am reminded of the difficulty often found in exciting a true vaccine vesicle, in the persons of those who have undergone the *Spurious*, or *irregular* Cow pock. Indeed it is often impossible to induce the true Vaccine disease in such individuals. On what principle can this be explained, unless we admit, that the *Spurious* Vaccination, so called, has had a partial, or, perhaps, in some instances, a complete, specific influence on the constitution.

On the subject of *Revaccination*, I will add a few observations. In the spring of 1828, I tried the experiment, on 160 individuals, of different ages, from one year, up to twenty, who had mostly been vaccinated in early infancy. Two of these (aet. 18 and 22) had vesicles, which appeared genuine, in every

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in every respect, except that they dried rather prematurely. The scars, left on the arms, differed from those of genuine vaccination, only in being somewhat more superficial. The old Cicatrices appeared genuine, and I have no hesitation in believing, that they both had, originally, the true Cow-pock. One of them was my brother, who had been, at different periods, within a few years, revaccinated, without any other effect than the production of papulae. The only one of the scabs that I succeeded in procuring, was composed of a thin lamina of, apparently, the true infection, which produced itching, with papulae, when inserted into the arms of several vaccinated persons; but I regret that I did not try its effect on the unprotected. – In 15 of the remaining 98, imperfect pustules were produced, which were, in general, more sore, in proportion to the freeneſs of the incisions made on inserting the matter. Of the rest, some had papulae, – in others, no effect followed. The mildneſs of the weather at the time, may have leſsened the activity of the infection.

Of the 100 just spoken of, a few only were afterwards

exposed to Variolous Contagion; and these were almost exclusively, very young children, who had been vaccinated, originally, only a year or two before. The others lived, chiefly, in parts of the town not infected. These circumstances will, in a great measure, explain the fact, that only one out of the hundred was subsequently attacked by Varioloid.

The origin, nature &c, of this Proteian disease, remain to constitute a subject for much speculation, into which, it is not my design to enter. Without adopting any particular view, in regard to it, I have spoken of it in the most generally received manner, as real Small pox, modified in its attacks on the protected system. The opinion of Professor Thomson, that Variola, and Varicella originate promiscuously from the same Contagion, is supported by many facts collected in his valuable work. But it seems to me, that the same arguments may be brought to uphold the doctrine, that the modern Epidemic is a malignant form of Varicella. In Wilmington, some cases of eruptive disease, resembling Varicella, & so pronounced by physicians, conversant with such

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with such complaints, occurred contemporaneously with the Varioloid, and, as far as could be judged propagated that disease. At Lancaster, Penna, where the Epidemic is generally supposed to have first made its appearance in our Country, only 4 deaths occurred among 350 unprotected persons attacked by it; of 6 cases, previously variolated none died; and of 40 vaccinated individuals who passed through it, 2 died. Professor Chapman, very reasonably supposes this disease to have been Varicella. The mortality in the unprotected, amounting to rather ~~less~~ more than one in 100, almost prohibits the supposition that it was Variola. Another doctrine, which derives no little support from the reasoning and eloquence of the professor in the practical Chair of our University, is, that the modern Epidemic is distinct from the old form of Small pox, and is a different disease.

It is asserted by Luders, that the tendency to Epidemic Exanthematous diseases has much increased, of latter years, and that Small pox has been affected by this circumstance. Admitting the Epidemic in question to be

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variola, it is evident that this disease has lately increased in Malignancy. The fatality usually ascribed to it, is in the proportion of one to six. But in Europe, this Epidemic was fatal in about one of four cases; and in this Country, at Philadelphia in about one half its attacks. Let the nature of the Epidemic be what it may, there is plainly a Connexion between its virulence, and its power to overcome the usual preservative means; yet, this Connexion is not uniform, as was shown when treating on the proportion of failures of Vaccination. At no places on this side the Atlantic, has it been so severe among the unprotected as at Philadelphia, and Wilmington; and at no places has so large a proportion of the protected been attacked. At Baltimore, where it did not extend far among the vaccinated, its mortality in the unprotected was as one in 6 or 7. At Wilmington where it was more frequent in its attacks on the protected system, the mortality was as one in 4 or 5. And in Philadelphia, where vaccination was still less efficient as a preservative, the mortality, as just stated, was about one half.

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The Epidemic agency by which this class of diseases is aggravated in Malignancy, has exemplified itself, on some occasions, in a striking manner. In Holstein and Denmark, where vaccination was a complete protection, prior to 1824, hundreds of failures took place in the few succeeding years. In Baltimore, on the first appearance of the disease, it was entirely exterminated by vaccination; but on its second visit, the Epidemic agency assisting, that barrier was broken through. Precisely the same thing occurred at Wilmington. Here, vaccination remained to be effectual for four years, although the aggravating influence alluded to, was exercising itself actively at no greater distance than 30 miles. It has yet been very limited in its extent on our Continent, having been restricted, as far as I can learn, to Washington City on the South, and New York, on the North. At both these places, its influence was but slight, few of the vaccinated being liable to the disease. The experience of a few years will show, whether the revolution that has taken place in this form of Exanthematous diseases, is to be permanent; or, whether, by a return to the ancient order, the gift of the illustrious Jenner, is to be reinstated in its former exalted situation.

P R

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Dr Gibson

1828 1829